AGENDA

OU6 -- Walnut Creek Priority Drainage
Phase I RFI/RI Environmental Evaluation

February 28, 1994

I. Review of OU6 EE Problem Formulation

- A. Objectives and scope
- B. Current Status with Respect to Workplan and EPA Framework
- C. Conceptual model

II. Study Design and Data Available to Date

- A. Ecological site and effects characterization
- B. Exposure assessment
- C. Initial data screen

III Polychlorinated Biphenyls in Pond Sediments

- A. Data on PCBs in A- and B-series ponds
- B Comparisons to EPA Sediment Quality Criteria and remedial action levels at other sites
- C. Scope of problem at OU6
- D. Proposed further sampling

OBJECTIVES AND SCOPE

- Objective.

  "[characterize] ecological effect to the biotic environment from exposure to contaminants resulting from IHSSs in the Walnut Creek Drainage" (DOE 1991)

- Scope of the OU6 EE

  Retrospective – contaminant releases have already occurred, scope of the investigation is defined by the events led to the suspected contamination.

  – little or no data on site conditions prior to contaminant release

  – physical disruptions coincided with chemical releases; use of reference area ecological comparisons not appropriate

  Pre-existing evidence of ecological stress -

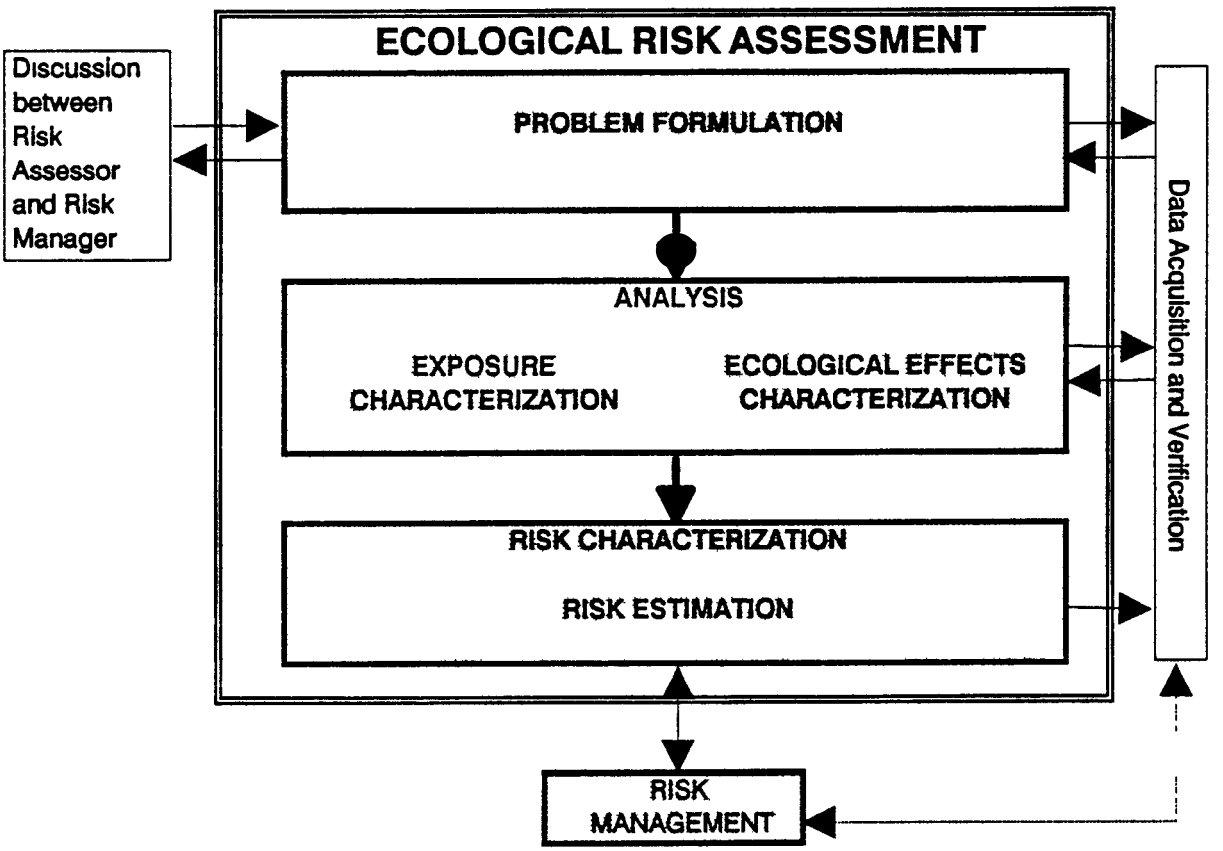
  - Toxicity of surface water in B-series ponds due to un-ionized ammonia
  - Lack of productive littoral margins in some ponds
  - Relatively low richness of benthic community in some ponds

  Source Driven – suspected sources of contaminants are defined, but ecological effects or exposures were mostly unknown

  Minimal Data for Identification of COCs – contaminants (stressors) were poorly known prior to abiotic field investigations. Therefore, chemical-specific endpoints were difficult to apply.

  - radionuclides
  - un-ionized ammonia in B-series ponds

EPA's
"FRAMEWORK FOR ECOLOGICAL RISK ASSESSMENT"



CONCEPTUAL MODEL

- Contaminant Sources

  – Soils in IHSSs 141, 143, 156.2, 165, 167.1, 216.1

  – Sediments and water in IHSSs 141.1-141.4 (A-Ponds), 142.5-142.9 (B-Ponds), 142.12 (pond at Indiana Street)

- Exposure Points – soils, sediments, and surface water in IHSSs

  – sediments and surface water in Walnut Creek downgradient of the OU6 source areas

  – biota (forage or prey)

- Exposure Routes – root uptake from soils/shallow groundwater

  – absorption from sediments or surface water

  – ingestion of abiotic media (sediments or surface water)

  – ingestion of forage or prey items that have become contaminated

- Food Web Interactions

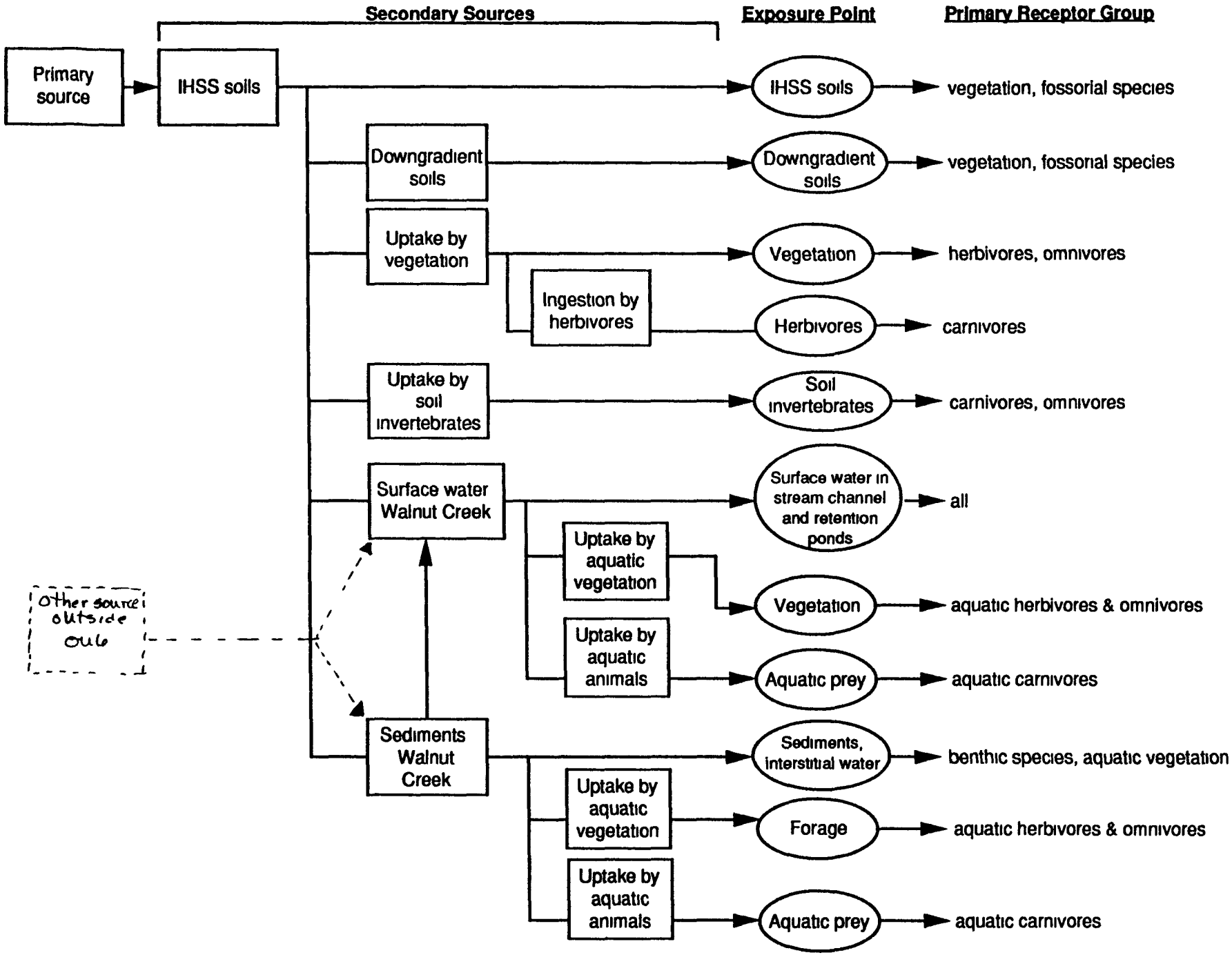


Figure 2. Conceptual Model for Primary Exposure Pathways, Operable Unit 6 Environmental Evaluation

STUDY DESIGN.

Sampling done to support·	(1) Ecological Characterization (2) Exposure Assessment
Reference Areas Sampled for	(1) Vegetation and small mammal community comparisons (2) Vegetation, small mammal, and fish tissue

Note· aquatic reference areas not sampled for comparisons of community attributes

Ecological Characterization

Terrestrial Community Characterization

Biota Type	Endpoints
Vegetation	community composition diversity (richness) cover releve (riparian)
Small Mammals	species presence/absence diversity (richness) sex age, reproductive condition weight morphometrics

Aquatic Community Characterization

Benthic Macroinvertebrates	community composition total individuals diversity (richness, Shannon)
Fish	species presence/absence
Toxicity Tests – Water	screens and WET tests using *Ceriodaphnia* and fathead minnows
Toxicity Tests – Sediment	whole sediment tests using *Hyalella azteca* and some tests with *Chironomus* sp; endpoints were survivorship and growth

Exposure Assessment

- Analyte concentrations in abiotic media

  surface and subsurface soils
  sediments
  surface water
  groundwater

- Analyte concentrations in biological tissues

  vegetation (whole, above-ground for selected species)
  small mammals (whole-body)
  fish (whole-body and gut)(where available)
  crayfish (where available)

- Toxicity Tests

  sediment from ponds
  surface water from ponds (NPDES and study-specific)
  surface water runoff (storm or event-related)

OU6 Environmental Evaluation Vegetation Sampling

Site ID	RFEDS Location Code	Ecological/Site Characterization			Tissue*
		Fall '92	Sum '93	Fall '93	
VG01A6	BI600092	10/27/92,	6/22/93,	10/6/93	11/1/92
VG02A6	BI600192	10/27/92,		10/6/93	11/1/92
VG03A6	BI600292	10/27/92,		10/6/93	10/29/92
VG04A6	BI600392	10/29/92,		10/4/93	10/29/92
VG05A6	BI600492	10/22/92,	6/22/93,	10/4/93	10/27/92
VG06A6	BI600592	10/26/92,	6/21/93,	10/6/93	10/27/92
VG07A6	BI600692	10/23/92,	6/21/93,	10/6/93	11/2/92
VG08A6	BI600792	10/23/92,	6/21/93,	10/6/93	11/2/92
VG09A6	BI600892	10/22/92,	6/21/93,	10/4/93	11/3/92
VG10A6	BI600992	10/27/92,	6/22/93,	10/4/93	
VG11A6	BI601092	10/27/92,		10/5/93	10/27/92
VG12A6	BI601192	10/27/92,		10/5/93	
VG13A6	BI601292	10/27/92,	6/21/93,	10/5/93	11/6/92
VG14A6	BI601392	10/27/92,	6/21/93,	10/5/93	
VG15A6	BI601492	10/27/92,	6/21/93,	10/5/93	10/27/92
VG16A6	BI601592	10/27/92,	6/21/93,	10/4/93	
VG17A6	BI601692	10/27/92,	6/21/93,	10/4/93	
VG18A6	BI601792	10/22/92,	6/21/93,	10/4/93	10/27/92
VG19A6	BI601892	10/29/92,		10/6/93	11/2/92
VG20A6	BI601992	10/28/92,		10/5/93	11/7/92
VG21A6	BI602092	10/28/92,		10/5/93	
VG22A6	BI602192	10/28/92,		10/4/93	11/6/92
VG23A6	BI602292	10/28/92,		10/5/93	11/7/92
VG24A6	BI602392	10/28/92,		10/5/93	10/27/92
VG25A6	BI602492	10/29/92,		10/6/93	
VG26A6	BI602592	10/29/92,		10/6/93	
VG27A6	BI602692	10/29/92,		10/6/93	11/3/92
VG28A6	BI602792	10/29/92,		10/6/93	10/29/92
VG29A6	BI602892	10/29/92,	6/22/93,	10/4/93	10/29/92
VG30A6	BI602992			11/2/93	
VG31A6				10/7/93	
VG32A6				10/7/93	
VG33A6				10/7/93	
VG34A6				10/7/93	
VG35A6				10/7/93	
VG36A6				10/7/93	
VG37A6				10/7/93	
VG38A6				10/7/93	

* - tissue samples analyzed for metals and radionuclides

OU6 Environmental Evaluation Small Mammal Sampling

Site ID	RFEDS Location Code	Ecological	Tissue*
MG04A6	BI600392		10/30/92
MG05A6	BI600492	10/21/92	
MG06A6	BI600592		10/28/92
MG07A6	BI600692	10/21/92	10/24/92
MG08A6	BI600792	10/21/92	11/17/92
MG09A6	BI600892	10/21/92	
MG11A6	BI601092		10/27/92
MG13A6	BI601292		10/27/92
MG15A6	BI601492	10/21/92	11/12/92
MG16A6	BI601592	10/21/92	
MG18A6	BI601792	10/21/92	10/27/92
MG29A6	BI602892	11/3/92	10/29/92

* - tissue samples analyzed for metals and radionuclides

Soil Sampling Conducted at Biota Sampling Sites*

Site I D	RFEDS Location Code	Date
VG05A6	BI600492	2/1/92
VG06A6	BI600592	2/1/92
VG07A6	BI600692	2/1/92
VG08A6	BI600792	2/1/92
VG09A6	BI600892	2/1/92
VG10A6	BI600992	2/2/92
VG15A6	BI601492	2/2/92
VG18A6	BI601792	2/1/92
		2/1/92
		2/1/92
VG27A6	BI602692	2/1/92
VG28A6	BI602792	2/1/92
VG29A6	BI602892	2/1/92
VG30A6	BI602992	2/1/92

* - soil samples analyzed for metals and radionuclides

OU6 Environmental Evaluation Aquatic Biota Sampling

SITE ID	RFEDS Location Code	Tissue Sampling(1)(2)			Benthos (taxon I D)	Toxicity Testing	
		Fathead	Bass	Crayfish		Sediment	Water
SED09		Apr-93		Apr-93			
SWA1	BI605592	Nov-92		Nov-92	Apr-93	Oct-92	May-93
		Apr-93		Apr-93			
SWA2	BI605692	Nov-92	*Apr-93*	Nov-92	Apr-93	Nov-92	May-93
		Apr-93		Apr-93			
		Oct-93		Oct-93			
SWA3	BI605792	Nov-92	Nov-92	Nov-92	May-93	Oct-92	May-93
		May-93	May-93	May-93			
SWA4	BI605892	Nov-92	Nov-92	Nov-92	May-93	Oct-92	
		Apr-93	May-93	Apr-93			
SWA5	BI605992	Nov-92	Nov-92	Nov-92	May-93	Nov-92	
		Apr-93	May-93	Apr-93			
SW59		May-93		May-93			
SWB1	BI606092	Nov-92		Nov-92	Oct-91	Nov-92	Oct-91
		Apr-93		Apr-93			
		Oct-93		Oct-93			
SWB2	BI606192	Nov-92		Nov-92	Oct-91	Nov-92	Oct-91
		Apr-93		Apr-93			
		Oct-93		Oct-93			
SWB3	BI606292	Nov-92		Nov-92	Oct-91	Oct-92	Oct-91
		Apr-93		Apr-93			May-93
SWB4	BI606392	*Nov-92*		Nov-92	Oct-91	Oct-92	Oct-91
		Apr-93		Apr-93			May-93
		Oct-93		*Oct-93*			
SWB5	BI606492	*Nov-92*	Sep-91	*Nov-92*	Sep-91	Oct-92	Oct-91
SW25			DRY				

(1) - Italics = tissue samples were sucessfully collected, no italics = no samples collected due to lack of trapping success

(2) - tissue samples analyzed for metals and radionuclides

Table 1 Physical, Biological, and Chemical Characteristics of the A- and B-Series Detention Ponds

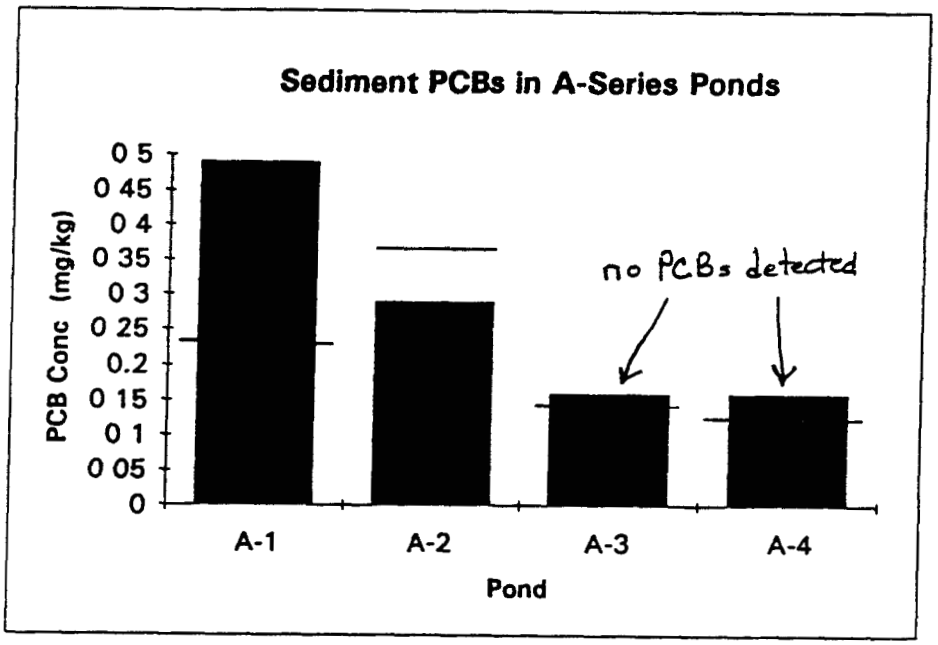
	Pond								
	A-1	A-2	A-3	A-4	B-1	B-2	B-3	B-4	B-5
Physical Characteristics									
Areal Extent (ha)	0 37	0 57	1 14	1 09	0 11	0 31	0 17	0 11	0 87
Water Source	local runnoff	local runnoff	N Walnut Cr	A-3, runnoff	local runnoff	local runnoff	WW treatment plant	B-3, runnoff	B-4, runnoff
Substrate	silt/sand	silt/sand	silt/sand	silt/sand	silt/sand	silt/sand	silt/sand	silt/sand	silt/sand
Water Level Managed?	no	no	yes	yes	no	no	yes	yes	yes
Biota									
Fish Present?	no	yes	no	yes*	no	no	no	yes	yes
Productive Littoral Zone?	yes	yes	no	yes	yes	yes	yes	yes	no
PCB Concentrations									
Sediment PCBs mg/kg (std dev)	0 5(0 1)	0 3(0 25)	nd	nd	1 6(2 3)	2 3(2 8)	1 5(1 8)	0 3(0 15)	nd
Total Organic Carbon mg/kg	11550	18414	6656	5469	24225	27720	9953	11132	6748
Sediment Quality Criterion - mg/kg	0 23	0 36	0 13	0 11	0 47	0 58	0 19	0 22	0 13
Toxicity Test Results (percent survival)									
Water									
Pimephales	100	100	100	100	100	95	50**	30**	50**
Ceriodaphnia	100	100	100	100	95	100	90	75**	65**
Sediment									
Hyalella	95	89	76	99	91	64**	84	91	60

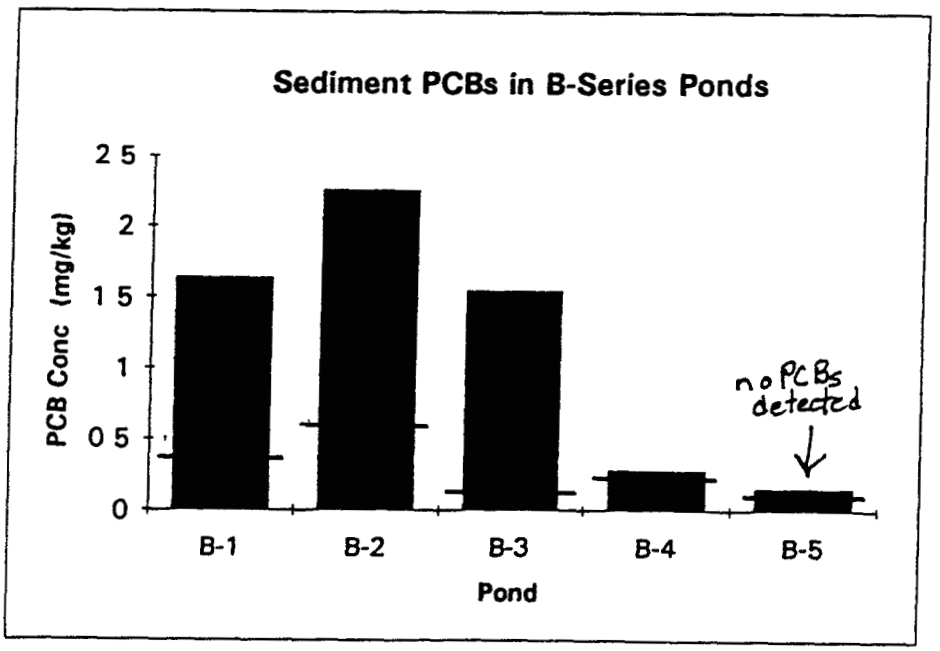
* Suspected presence of fathead minnows (Pimphales promelas)
** Significantly more toxic than controls
nd = not detected

Figure 2 OU6 Phase I RFI/RI Total PCB Concentrations
in Sediments of A- and B-Series Ponds

Top 2' of sediment

——— = EPA sediment quality criterion calculated using TOC





Note Data presented here are based on preliminary calculations.

Table 3 Summary of Benthic Macroinvertebrate Communities in A- and B-Series Ponds

Parameter	Pond A-1	A-2	A-3	A 4	B-1	B-2	B-3	B-4	B-5
Taxa Richness	38	40	13	9	19	8	24	18	3
Percent Contribution of Dominant Family	51	28	51	77	55	65	49	56	77
Dominant Family	Chironomidae (Insecta)	Talitridae (Amphipoda)	Tubificidae (Annelida)	Chironomidae (Insecta)	Talitridae (Amphipoda)	Tubificidae?* (Annelida)	Tubificidae?* (Annelida)	Tubificidae?* (Annelida)	Chironomidae (Insecta)
Shannon's Diversity	2 31	2 43	1 71	0 87	1 65	0 94	1 52	1 36	0 63
EPT/Chironomidae	0 22	0 5	0	0	38	11	0 015	0 006	0

Notes

* For the B-series ponds, Oligochaetes were not identified However, based on the A-series pond data, the only family represented significantly was Tubificidae

1 Taxa Richness represents the total number of distinct taxa identified for a given site

2 Organisms were identified to the lowest level of taxonomic resolution possible In general this was the genus level However, some organisms could only be identified to the family level In a few instances, species-level identification was possible

3 Shannon's diversity calculated with BOOTSTRAP, benthic community analysis software developed for the National Park System

4 EPT/Chironomidae represents total number of individuals of the orders Ephemeroptera, Plecoptera, and Trichoptera divided by the total number of individuals of the generally tolerant family Chironomidae

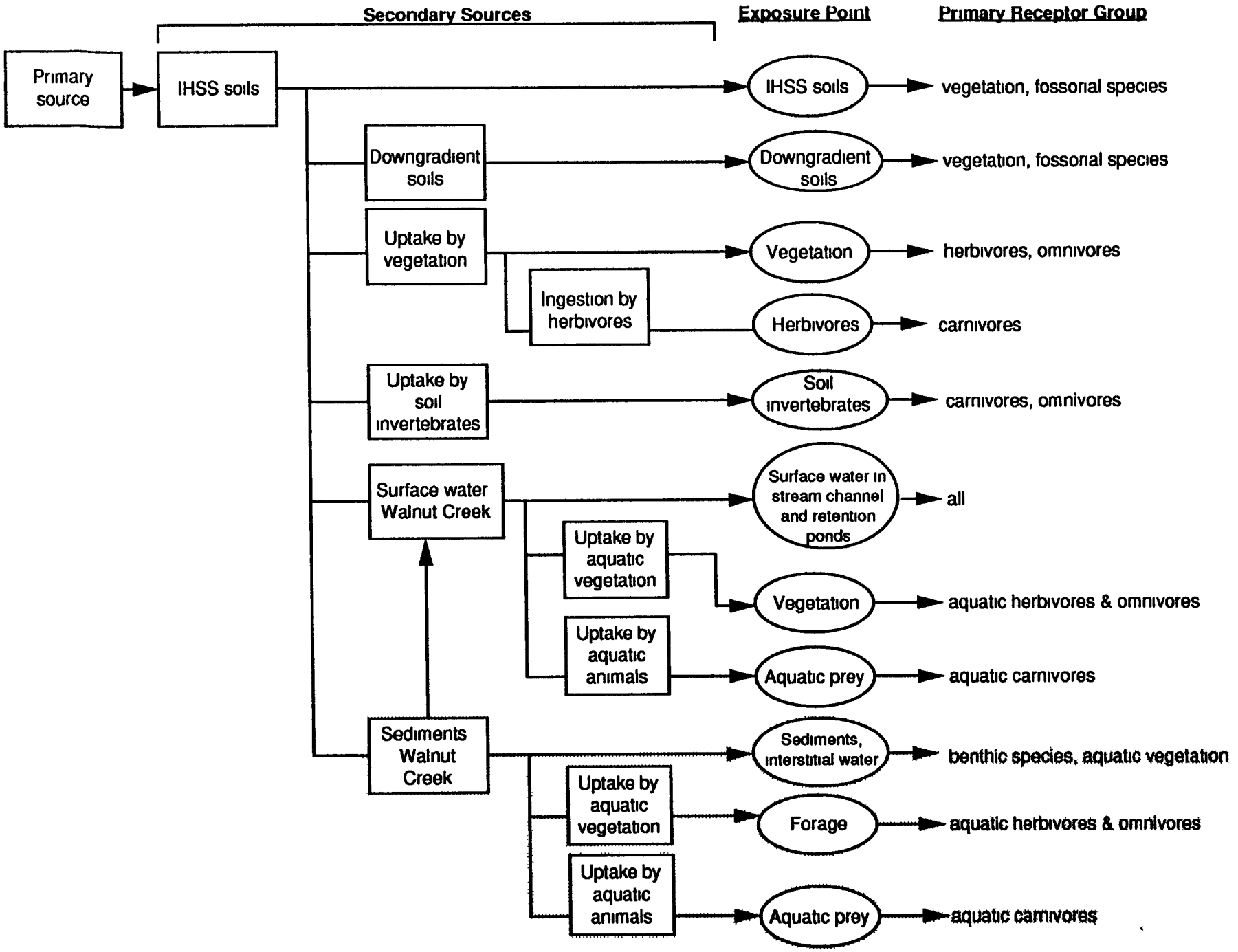
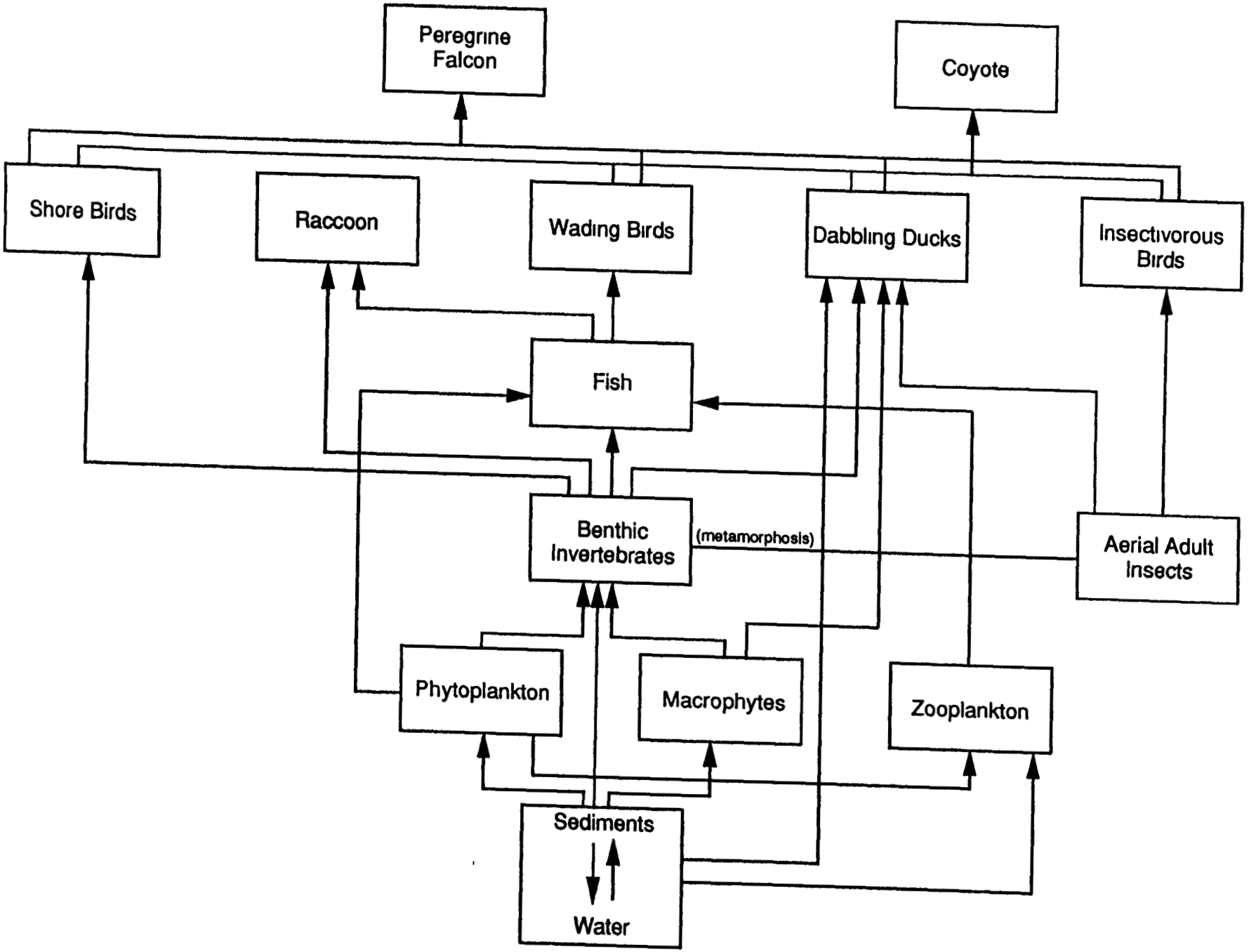


Figure 2. Conceptual Model for Primary Exposure Pathways, Operable Unit 6 Environmental Evaluation

M51E\ES\OU6a prim expos path model.mdw\2-25-94



M\ES\Tropic Path Fig. 4.mdw\2 7-94

Figure 3. Generalized Pathway for Transfer of Contaminants from Sediments to Biota in Local Food Web at Rocky Flats

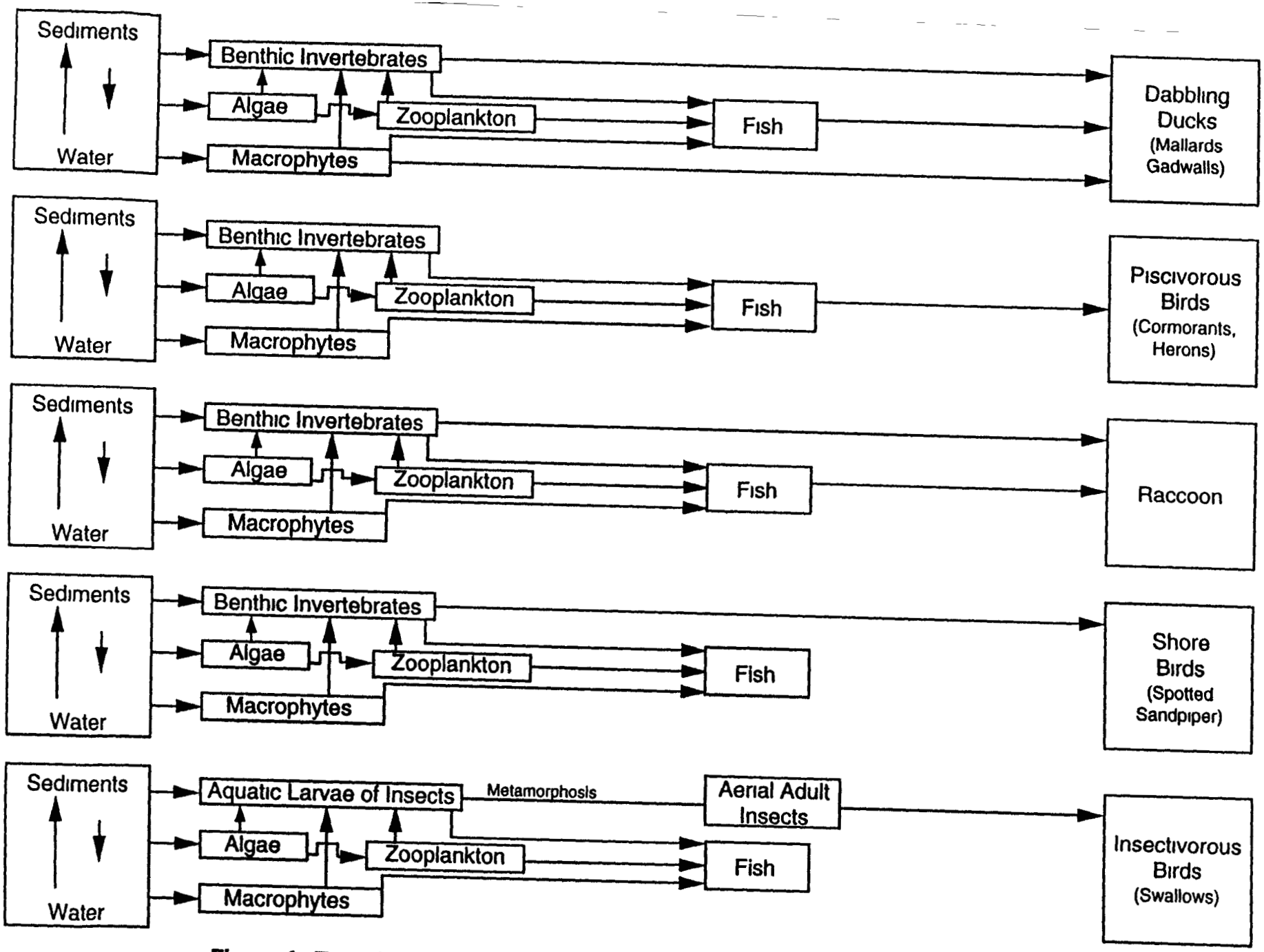


Figure 4. Trophic Exposure Pathways Considered in Exposure Characterization

M\ES\Trophic Exposure Fig 4.mdw\2 10-94

ADDITIONAL INFORMATION NEEDED TO EVALUATE RISK OF PCBs IN POND SEDIMENTS

- Concentration of PCBs in sediments to which aquatic organisms, primarily benthos, are exposed

  Activity: sample sediments in the upper 6 inches in ponds where PCBs were detected

- Relative bioavailability of PCBs in sediments to aquatic organisms

  Activity: sample fish and aquatic invertebrate tissue to determine extent to which PCBs are being transferred "upward" thus becoming available to upper levels of food web

- Relative bioavailability of PCBs to mallard ducks nesting in the area

  Activity: sample mallard duck eggs for PCB content

TASKS TO BE COMPLETED

Task 400 – Toxicity Assessment

- Final screening for Contaminants of Concern (COCs)

  – final identification of site contaminants
  – concentration-toxicity screen of site contaminants
  – final identification of COCs by medium

- Development of Toxicity Reference Values for evaluating potential hazard of exposures to COCs

Task 500 – Exposure Assessment

- Identify:
  – exposure routes and points
  – receptor species to be evaluated
  – methods for exposure estimation

- Estimate Exposures

Task 600 – Preliminary Contamination Characterization (step in Risk Characterization)

- Characterize sources and exposure points that represent potentially toxic exposures

- Characterize relevance of exposures to ecologically significant impacts
  – population and community level
  – risks to individuals of protected species

Task 700 – Uncertainty Analysis

- Determine sources of uncertainty and their potential effects on conclusions

Task 1000 – Environmental Evaluation Report

- Perform final risk characterization
- Synthesize all information and prepare report to present data and conclusions

Meeting Summary - February 28, 1994

RE OU6 - Walnut Creek Priority Drainage Phase I RFI/RI Environmental Evaluation

List of attendees

Norma Castaneda	DOE
Bill Fraser	EPA
Bonnie Lavelle	EPA
Neil Holsteen	EG&G
Ed Mast	EG&G
Frank Vertucci	EG&G
Mark Lewis	S M Stoller Corporation
Katharine Misken	S M Stoller Corporation

This meeting was held to update the regulatory agencies on the status of environmental investigations at Operable Unit No 6 (OU6) Mark Lewis gave the presentation Handouts accompanying the presentation are attached

I. REVIEW OF OU6 EE PROBLEM FORMULATION

A Objectives and Scope

The objective of this investigation was to "[characterize] ecological effect to the biotic environment from exposure to contaminants resulting from IHSSs in the Walnut Creek Drainage" (quote from OU6 RFI/RI Work Plan) Historical releases, data from previous investigations, and information on past physical alterations of the site were reviewed prior to initial investigation The EE was source-driven with some evidence of ecological stress and minimal data for identification of contaminants of concern (COCs) (although un-ionized ammonia and radionuclides were known from previous sampling)

Representatives from EPA had no formal opinion on whether the A- and B-Series ponds are aquatic habitat to be protected, or anthropogenic disruptions of the natural condition of the drainage that should be remediated EG&G and Stoller noted that this distinction is important to selecting endpoints and defining resources to be protected in the OU6 ecological risk assessment

Variable site use and substantial manipulation of pond water levels make comparisons of the aquatic communities in the A- and B-Series ponds to reference areas inappropriate

Community structure analysis conducted thus far will be used to elucidate ecological patterns and not necessarily contaminant effects Therefore, the aquatic portion of the risk assessment will emphasize exposure assessment in evaluation of potential impacts

Delays in the OU6 schedule allowed time for screening of preliminary (unvalidated) data from abiotic media investigations for compounds that may bioaccumulate The initial data collection and contaminant screen were performed to identify potential contaminants that might biomagnify Potential transfer of contaminants from aquatic to terrestrial communities is of significant interest for subsequent investigations

B. Current Status with Respect to Work Plan and EPA Framework

Currently Tasks 8 and 9 of the 10-task scheme described in the OU6 RFI/RI Work Plan are being implemented According to EPA's "Framework for Ecological Risk Assessment," the problem formulation, data analysis, and data acquisition phases may be iterative, with additional data needs identified based on results of initial activities The OU6 EE is currently refining the investigation focus based on preliminary data and identification of additional data needs Additional data will be acquired through sampling

Final COCs have not been selected because a final "fixed" data set for abiotic media is not yet available Site contaminants identified during the evaluation of the nature and extent of contamination will be used to select COCs

C. Conceptual Model

M Lewis (Stoller) identified the IHSSs included in OU6 as primary source areas It was noted that sediments of the detention ponds may be viewed as secondary sources because they receive contaminants from upgradient sources It is not clear whether contaminant transport is ongoing Information relating to the source, sinks, and ongoing releases is required to make this determination F Vertucci (EG&G) noted that OU6 sampling could be used as part of the sitewide source analysis For the purposes of the EE, the ponds will be considered potential sources and exposure points for aquatic and terrestrial biota Stoller will also assume that the contaminant flux among source areas is at steady state

EPA suggested considering the ponds a source of contaminants to Great Western reservoir

Exposure points will include soil, sediment, surface water, and biota in the IHSSs and some downgradient areas Exposure routes will include root uptake, absorption from sediment or surface water, and ingestion of abiotic media and contaminated forage or prey items Food web interactions will be evaluated including bioaccumulation and biomagnification where important

B Lavelle (EPA) asked if particulate inhalation will be evaluated as an exposure route M Lewis (Stoller) replied that potential effects of the inhalation exposure route will be qualitatively evaluated because cancer is the primary toxic effect for this pathway and carcinogenic endpoints generally are not evaluated in ecological risk

M Lewis (Stoller) also noted that acute radiation poisoning or constituent metal toxicity is not likely because of the relatively low concentration of radionuclides in soil and sediment at OU6 but the potential for these effects will be addressed Chronic internal radiation exposure will be quantitatively assessed using tissue radionuclide concentrations

II. STUDY DESIGN AND DATA AVAILABLE TO DATE

A Ecological Site and Effects Characterization

Aquatic sampling conducted to date includes abiotic media, benthic macroinvertebrates and fish community characterization, and water and sediment toxicity tests F Vertucci (EG&G) again noted that community diversity is not necessarily contaminant driven

A substantial amount of aquatic toxicity testing already has been performed under the NPDES permit M Lewis (Stoller) noted that previous water toxicity tests in the B-Series ponds indicated toxicity due to un-ionized ammonia, assumed to be from the wastewater treatment plant

M Lewis (Stoller) noted that other ponds at RFP may be acceptable background areas for sediment and tissue analysis because airborne transport of polychlorinated biphenyls (PCBs) is not likely A summary of ecological data collected to date was presented (see attachment)

B. Exposure Assessment

Exposure modeling will be done for each IHSS and for the entire site/drainage Tertiary sources will be included Measures of exposure point concentrations will be used when available Other routes and endpoints may be modeled

Exposure estimations will be conducted using COC concentrations in abiotic media and biological tissue Results of toxicity tests will be used to evaluate actual risk of exposure to abiotic media and assess relative bioavailability of contaminants

C. Initial Data Screen

Preliminary and unvalidated data from investigations of abiotic media were screened for chemicals that have the potential to biomagnify Lead and mercury were detected in slightly elevated concentrations in a few samples, but the site mean was not significantly different from background PCBs were detected in sediments of some ponds Other semivolatile organic compounds (SVOCs) were either not detected or were rarely detected Potential impacts and the need for further sampling for PCBs were evaluated

III. POLYCHLORINATED BIPHENYLS IN POND SEDIMENTS

PCBs were detected in sediments of ponds A-1, A-2, B-1, B-2, B-3, and B-4 Only the PCBs Aroclor 1254 and Aroclor 1260 were detected

Only data from the zero- to two-foot depth interval were presented However, aquatic organisms are only exposed to approximately the top 6 inches of sediment

Sediment quality criteria (SQCs) were calculated using EPA methods Concentrations of PCBs in sediments of Ponds A-1, B-1, B-2, B-3, and B-4 exceeded SQCs EPA's guidance specifies that the SQCs should be used as a trigger to indicate a need for further sampling

The origin and time of PCB release was discussed E Mast (EG&G) said that the source was unknown and could be outside OU6 M Lewis (Stoller) noted that the highest PCB concentrations were generally deeper than 2 feet in sediment, suggesting that clean sediments may have been deposited on contaminated ones M Lewis (Stoller) noted that

the absence of PCBs with lower chlorine contents may indicate that release is relatively old F Vertucci (EG&G) suggested that stratification of sediments could be used to determine the timing and possible source of PCBs

M Lewis (Stoller) reviewed existing data on toxicity and ecological stress with respect to PCB contamination of sediments There appears to be no relationship between PCB concentration and toxicity of either sediments or water from the A- and B-Series ponds The EPA toxicity test species, *Hyalella azteca*, was the dominant species found in the ponds M Lewis (Stoller) noted that the abundance of oligochaetes (Tubificidae) in ponds B-2, B-3, and B-4 is typical of waters impacted by municipal wastewater treatment plants Pond B-2 receives water from the RFP wastewater treatment plant

M Lewis (Stoller) stated that PCBs readily biomagnify Therefore, further PCB analysis will focus on exposures to upper-level consumers in the aquatic-based food web However, PCB bioavailability decreases with age Exposures to waterfowl, wading birds, shorebirds, and raccoons will be evaluated Exposure to peregrine falcons and coyotes will be assessed qualitatively

A. Proposed Further Sampling

A brief summary of sampling to be performed was presented Sampling and analysis will focus on assessing bioavailability of PCBs in sediments and potential exposure of the receptors noted above Sediment sampling will focus on the upper 6 inches of sediment to determine potential biological exposure Fish and invertebrate tissue will also be analyzed as exposure points to upper-level consumers F Vertucci (EG&G) asked if fish gut contents will be examined to determine diet composition M Lewis (Stoller) replied that this is not planned at this time due to sampling difficulty M Lewis (Stoller) also noted that biomarkers will not be used because it is difficult to reliably quantify their relationship to adverse effects Mallard duck eggs may be sampled if available

EPA agreed to the focus of sampling as presented They noted that protection of aquatic habitat is not resolved, but agreed that focusing the hazard assessment on receptors susceptible to biomagnification is appropriate B Fraser (EPA) said that no EPA review of the sampling plan was necessary B Lavelle (EPA) would like to be notified of sampling so that EPA may attend

F Vertucci (EG&G) suggested transplanting fathead minnows from PCB-free ponds at RFP to PCB-contaminated ponds and vice versa to attempt to determine whether fish in the B-Series ponds have become acclimated to PCBs in sediments B Lavelle (EPA) and B Fraser (EPA) agreed this may be interesting but did not require it

B. Deliverables

B Lavelle (EPA) and B Fraser (EPA) requested that data on ecological characterization be forwarded to them prior to submittal of the draft report They agreed to return comments on these data prior to comments on the draft report B Lavelle (EPA) and B Fraser (EPA) will provide E Mast (EG&G) with the aquatic endpoints (e g , dominant family) its aquatic biologists would like to see summarized from OU6 data E Mast (EG&G) will pass this on to S M Stoller for completion of the data summaries E Mast (EG&G) asked if EPA wanted to sign meeting minutes B Fraser (EPA) said no

B Lavelle (EPA) and B Fraser (EPA) also requested a summary of PCB remedial action levels at other sites to provide perspective on the PCB levels found in OU6 Site-specific standards will be qualified with the endpoint, effect, and/or species the standard is protecting

The current negotiated schedule indicates the Phase I RFI/RI draft due in June 1994, and the final document is due in September 1994 E Mast (EG&G) noted that current sampling is hoped to be included in the draft, but could be available for the final only B Fraser (EPA) indicated that inclusion of data for the final draft is acceptable

U.S. Department of Energy
Rocky Flats Plant Golden Colorado

Aquatic and Terrestrial Sampling Sites for OU6 Environmental Evaluation

▲ Vegetation and Small Mammal Sampling Site

◆ Surface Water and Sediment Sampling Site

* Soil Sampling Site

Paved Roads

Dirt Roads

Streams, Ditches and Drainage Features

OU6 IHSS Boundary

N

0 Feet 1000 2000

VG19A6
VG01A7
MG01A7
VG01A6
VG03A6
VG02A6
VG04A6
MG04A6
SWLFP
VG29A6
MG29A6
VG05A6
MG05A6
VG26A6
VG25A6
VG35A6
SWA4
VG36A6
VG24A6
SW025
SED33
VG18A6
MG18A6
VG31A6
VG09A6
MG09A6
VG10A6
MG10A6
SW003
SED03
VG34A6
VG06A6
MG06A6
VG33A6
SWA1
VG07A6
MG07A6
SWA2
SWA3
VG08A6
MG08A6
VG37A6
VG17A6
SWB5
SW017
SED09
VG28A6
VG38A6
VG12A6
VG27A6
VG11A6
MG11A6
VG32A6
MG15A6
VG16A6
MG16A6
SWB4
VG15A6
VG14A6
VG23A6
SWB3
VG22A6
SWB2
SW059
SED11
VG13A6
MG13A6
SWB1
VG21A6
VG20A6
SW023
SED12